



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,344	09/04/2001	Shiroshi Matsuki	50352-02	9915

7590 01/25/2005
McDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

WONG, EDNA

ART UNIT PAPER NUMBER

1753

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. 09/944,344	Applicant(s) MATSUKI ET AL.	
Examiner Edna Wong	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 16 December 2004.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) 4-13 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-3 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

This is in response to the Amendment dated December 16, 2004. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

Claim Rejections - 35 USC § 112

Claims **1-3** have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claims 1-3 under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 103

I. Claim **1** has been rejected under 35 U.S.C. 103(a) as being unpatentable over **Bartley** (US Patent No. 4,677,234) in combination with **Okada et al.** (US Patent No. 6,218,335 B1) and **Fernandez et al.** (US Patent No. 5,449,845).

The rejection of claim 1 under 35 U.S.C. 103(a) as being unpatentable over Bartley in combination with Okada et al. and Fernandez et al. has been withdrawn in view of the new grounds of rejection.

II. Claim **3** has been rejected under 35 U.S.C. 103(a) as being unpatentable

over **Bartley** (US Patent No. 4,677,234) in combination with **Okada et al.** (US Patent No. 6,218,335 B1) and **Fernandez et al.** (US Patent No. 5,449,845) as applied to claim 1 above, and further in view of **Gottfried et al.** (US Patent No. 4,659,555).

The rejection of claim 3 under 35 U.S.C. 103(a) as being unpatentable over **Bartley** in combination with **Okada et al.** and **Fernandez et al.** as applied to claim 1 above, and further in view of **Gottfried et al.** has been withdrawn in view of the new grounds of rejection.

III. Claim 2 has been rejected under 35 U.S.C. 103(a) as being unpatentable over **Bartley** (US Patent No. 4,677,234) in combination with **Fernandez et al.** (US Patent No. 5,449,845).

The rejection of claim 2 under 35 U.S.C. 103(a) as being unpatentable over **Bartley** in combination with **Fernandez et al.** has been withdrawn in view of the new grounds of rejection.

IV. Claim 3 has been rejected under 35 U.S.C. 103(a) as being unpatentable over as **Bartley** (US Patent No. 4,677,234) in combination with **Fernandez et al.** (US Patent No. 5,449,845) applied to claim 2 above, and further in view of **Gottfried et al.** (US Patent No. 4,659,555).

The rejection of claim 3 under 35 U.S.C. 103(a) as being unpatentable over as

Bartley in combination with Fernandez et al. applied to claim 2 above, and further in view of Gottfried et al. has been withdrawn in view of the new grounds of rejection.

Response to Amendment

Claim Rejections - 35 USC § 112

Claims **1 and 3** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1

line 5, it appears that the "basic copper carbonate powder" is the same as the basic copper carbonate powder having impurities recited in claim 1, line 4. However, it is unclear if it is.

If it is, then it is suggested that the word -- the -- be inserted after the word "heating".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **1 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Pasek et al. (US Patent No. 5,492,681) in combination with **Bartley** (US Patent No. 4,677,234), **Okada et al.** (US Patent No. 6,218,335 B1), **Fernandez et al.** (US Patent No. 5,449,845) and **Gottfried et al.** (US Patent No. 4,659,555).

Pasek teaches a method for manufacturing a copper electroplating material adapted to be fed as a copper ion supply to a copper plating bath in copper electroplating, comprising the step of:

heating basic copper carbonate powder to a temperature to carry out thermal decomposition of the basic copper carbonate to thereby produce easily dissolved copper oxide powder (= copper oxide has been produced commercially by the thermal decomposition of basic copper carbonate) [col. 1, lines 21-25; and col. 4, lines 55-67].

Pasek does not teach wherein the heating is at a temperature of 250°C to 800°C in an atmosphere which is not rendered reductive.

However, Bartley teaches that copper carbonate begins to decompose at a temperature of about 200°C. Calcination in an air atmosphere converts the decomposable precursor to the oxide of the metal. Calcination involves high temperature heating under oxidizing conditions so that the carbonate is decomposed and the volatile material is expelled. In general, calcination is desirably carried out by exposure to temperatures ranging from about 200°C to about 500°C for a time sufficient to allow substantial conversion of copper carbonate to copper oxide (col. 7, lines 33-46).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Pasek with wherein the heating is at a temperature of 250°C to 800°C in an atmosphere which is not rendered reductive because copper carbonate begins to decompose at a temperature of about 200°C as taught by Bartley (col. 7, lines 38-39). Thus, exposing the basic copper carbonate powder to temperatures ranging from about 200°C to about 500°C under oxidizing conditions for a sufficient time would have allowed substantial conversion of the copper carbonate powder to copper oxide powder.

Bartley is deemed to be analogous as a secondary reference if it addresses the same problem as does the primary reference. See *In re GPAC Inc.*, 35 USPQ 2d 1117, 1120, 1121 (FC 1995).

As to supplying basic copper carbonate powder having impurities into a heating furnace, it is known to conduct calcination in an electric furnace as taught by Okada (col. 3, lines 28-34).

The selection of old parts to operate in new environments in order to achieve the same results was held to have been obvious. *In re Ross* 105 USPQ 237. And the substitution of known equivalent structures was held to have been obvious. *In re Ruff* 118 USPQ 343 (CCPA 1958).

Okada is deemed to be analogous as a tertiary reference if it addresses the same problem as does the secondary reference. See *In re GPAC Inc.*, 35 USPQ 2d

1117, 1120, 1121 (FC 1995).

The impurities in the basic copper carbonate powder would have been depended upon how the basic copper carbonate powder was manufactured.

As to washing the easily dissolved copper oxide powder with water for reducing the impurities which have been included in the basis copper carbonate powder from the easily dissolved copper oxide powder to provide the copper electroplating material, the impurities which have been included in the basic copper carbonate powder would have been depended upon how the basic copper carbonate powder was manufactured and reducing them from the easily dissolved copper oxide powder to provide the copper electroplating material would have depended upon the application of the easily dissolved copper oxide powder.

Thus, washing the easily dissolved copper oxide powder with water would have been well within the skill of the artisan to have done in order to have provided a clean copper electroplating material to be used as a reactant in an electroplating process (Pasek, col. 1, lines 10-17) because it is known in the electroplating art that impurities in the electroplating bath can affect the quality of the metal deposited (e.g., conductivity, adhesion, or brightness). Thus, a high purity copper oxide powder would have been desirable by one having ordinary skill in the art.

Furthermore, Fernandez teaches washing a copper oxide precipitate with water to remove soluble salts, including any excess alkali (col. 7, line 68 to col. 8,

line 1). The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F 2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 USPQ 904 (1991); and MPEP § 2144.

As to wherein the basic copper carbonate powder is obtained by mixing an aqueous solution of a copper salt selected from the group consisting of copper chloride, copper sulfate and copper nitrate and an aqueous solution of a carbonate of a material selected from the group consisting of alkaline metal, alkaline earth metal and ammonia (NH₄) with each other, reacting both aqueous solutions with each other while heating them, to thereby deposit a reaction product, and separating the reaction product by filtration, Pasek does not teach how the basic copper carbonate powder was obtained. However, it is known to make basic copper carbonate powder by the process disclosed by Gottfried (col. 2, line 56 to col. 3, line 6) because the basic copper carbonate so obtained is particularly suitable as a feed additive and for the preparation of catalysts as taught by Gottfried (col. 2, lines 49-51).

Gottfried teaches a process for preparing basic copper carbonate comprising the steps of:

(a) mixing an aqueous solution of a copper salt selected from the group

consisting of copper chloride, copper sulfate and copper nitrate (= a waste solution from copper etching processes of CuCl_2) and an aqueous solution of carbonate of a material selected from alkaline metal, alkaline earth metal and ammonia (NH_4) (= sodium carbonate solution) with each other; and

(b) reacting both aqueous solutions with each other while heating them (= a temperature of 60°C), to thereby deposit a reaction product (= basic copper carbonate as a light green precipitated sludge), and separating the reaction product by filtration (filtered, washed and dried) [col. 2, line 56 to col. 3, line 6].

It is deemed that the basic copper carbonate powder obtained by the process taught by Gottfried is a basic copper carbonate powder having impurities because similar processes can reasonably be expected to yield products which inherently have the same properties. *In re Spada* 15 USPQ 2d 1655 (CAFC 1990); *In re DeBlauwe* 222 USPQ 191; *In re Wiegand* 86 USPQ 155 (CCPA 195).

It has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ 2d 1443 (Fed. Cir. 1992). In this case, the process described in Pasek is reasonably pertinent to the particular problem with which Applicants were concerned, i.e., thermally decomposing basic copper carbonate, in which Bartley teaches the conditions of thermally

decomposing basic copper carbonate, in which Okada teaches carrying out thermal decomposition in a furnace, in which Fernandez teaches the washing of a copper oxide precipitate and in which Gottfried teaches obtaining basic carbon carbonate powder.

The methods as presently claimed in claims 1 and 2 are not electroplating methods. There are no electroplating steps positively claimed. These methods are directed to manufacturing a copper electroplating material.

The limitation of “adapted to be fed as a copper ion supply to a copper plating bath in copper electroplating” in claims 1 and 2 are in their preambles. A preamble is not necessarily accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. *In re Hirao* 535 F. 2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie* 187 F 2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Thus, the field of applicant’s endeavor is directed to manufacturing a copper electroplating material.

As to the field of applicant’s endeavor of reducing impurities, claims 1 and 2 recite that the step of washing with water reduces the impurities (it appears that the heating step does not do this). Thus, washing alone does not make the claims patentable because there can be many reasons in the art to wash a copper oxide powder which may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In*

re Linter 458 F 2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 USPQ 904 (1991); and MPEP § 2144.

For example, the produced easily dissolved copper oxide powder could have been stored and bagged for some time for later use. Then, one having ordinary skill in the art has the skill to wash the powder before using it in an electroplating process.

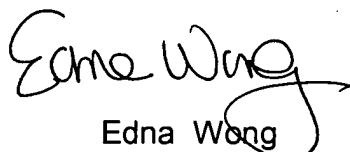
II. Claims **2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Pasek et al.** (US Patent No. 5,492,681) in combination with **Bartley** (US Patent No. 4,677,234), **Fernandez et al.** (US Patent No. 5,449,845) and **Gottfried et al.** (US Patent No. 4,659,555).

Pasek et al., Bartley, Fernandez et al. and Gottfried et al. are as applied for the reasons as discussed above and incorporated herein.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 3:30 pm, Flex Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Edna Wong
Primary Examiner
Art Unit 1753

EW
January 24, 2005